WHAT IS CLAIMED IS:

1. A method of detecting and compensating for leakage of hydraulic fluids in a production plant, comprising the steps of:

1) providing a production plant wherein at least one hydraulic fluid is in use to operate equipment, wherein the equipment operated shapes the product being produced into a desired form, wherein said product being produced is contacted, in at least one point in the production process, with water, wherein the water that contacts the product is then collected and circulated through the production plant cooling water system;

2) adding to said hydraulic fluid, two tracer materials,

(a) wherein the first tracer material, known as Tracer First, is capable of being detected at a level of at least about 50 ppt and is capable of having its fluorescent signal degraded by contact with materials present in the cooling water, and wherein the second tracer material, known as Tracer Second, is capable of being detected at a level of at least about 1 ppb, and is not capable of having its fluorescent signal degraded by contact with materials present in the cooling water,

(b) wherein each of Tracer First and Tracer Second is added to said hydraulic fluid in a known proportion to said hydraulic fluid and to each other, and

(c) wherein the fluorescent signals of each of Tracer First and Tracer Second are individually detectable in said hydraulic fluid, and the fluorescent signals of each of Tracer First and Tracer Second are individually detectable in said water that is collected and circulated through the production plant cooling water system;

3) providing one or more fluorometers capable of detecting the fluorescent signal of Tracer First and locating said one or more fluorometers in any location within the cooling

water system of said production plant, where it is desired to detect and compensate for leakage of hydraulic fluid;

4) providing one or more fluorometers capable of detecting the fluorescent signal of Tracer Second and locating said one or more fluorometers in any location within the cooling water system of said production plant where it is desired to detect and compensate for leakage of hydraulic fluid;

5) using a fluorometer to detect and measure the fluorescent signal of said Tracer First in each location chosen;

6) using a fluorometer to detect and measure the fluorescent signal of said Tracer Second in each location chosen;

7) using the detected and measured fluorescent signals of Tracer First and of Tracer Second to determine how much of the hydraulic fluid is present in the cooling water system of said production plant; and optionally;

8) adjusting the operating parameters of said production plant, such that the amount of hydraulic fluid present in said cooling water system is minimized or compensated for such that operation of the production plant is maintained at the best possible level.

2. The method of Claim 1 wherein the production plant is an aluminum mill.

3. The method of Claim 1 wherein the production plant is a steel mill.

4. The method of Claim 1 wherein Tracer First is selected from the group consisting of

fluorescein,

fluorescein, sodium salt,

2',7'-dichlorofluorescein,

4,5,6,7-tetrachlorofluorescein,

4',5'-dibromofluorescein,

2',4',5',7'-tetrabromofluorescein, disodium salt,

2',4',5'7'-tetraiodofluorescein, disodium salt,

2',4',5',7'-tetrabromo-4,5,6,7-tetrachlorofluorescein, disodium salt

1-ethylquinaldinium iodide,

anthra[9,1,2-cde]benzo[rst]pentaphene-5,10-diol, 16,17-dimethoxy-, bis(hydrogen sulfate), disodium salt,

9,9'-biacridinium, 10,10'-dimethyl-, dinitrate,

5-dimethylamino-1-naphthalenesulfonic acid,

quinoline,

3H-phenoxazin-3-one, 7-hydroxy-, 10-oxide,

xanthylium, 9-(2,4-dicarboxyphenyl)-3,6-bis(diethylamino)-, chloride, disodium salt,

phenazinium, 3,7-diamino-2,8-dimethyl-5-phenyl-, chloride

xanthylium, 3,6-bis(diethylamino)-9-(2,4-disulfophenyl)-, inner salt, sodium salt,

2,2'-stilbenedisulfonic acid, 4,4'-bis[5-[(4-methoxy-6-phenoxy-1,3,5-triazin-2-yl)amino]-, disodium salt,

benzenesulfonic acid, 2,2'-(1,2-ethenediyl)bis[5-[[4-[(aminomethyl)(2-hydroxyethyl)amino]-6-(phenylamino)-1,3,5-triazin-2-yl]amino]-, disodium salt,

benzenesulfonic acid, 2,2'-(1,2-ethenediyl)bis[5-[[4-[bis(2-hydroxyethyl)amino]-6-[(4-sulfophenyl)amino]-1,3,5-triazin-2-yl]amino]-, tetrasodium salt,

benzenesulfonic acid, 2,2'-(1,2-ethenediyl)bis[5-[[4-[(2-hydroxypropyl)amino]-6-(phenylamino)-1,3,5-triazin-2-yl]amino]-, disodium salt,

benzenesulfonic acid, 5-(2H-naphtho[1,2-d]triazol-2-yl)-2-(2-phenylethenyl)-, sodium salt,

2-[4-(dimethylamino)styryl]-1-methylpyridinium iodide,

2-[4-(dimethylamino)styryl]-1-ethylpyridinium iodide,

2-[*p*-(dimethylaminostyryl]-1-methylquinolinium iodide,

7-aminonaphthalene-1,3-disulfonic acid, potassium salt,

4-aminonaphthalene-1-sulfonic acid, sodium salt,

phenothiazin-5-ium, 3,7-bis(dimethylamino)-, chloride, trihydrate,

2-amino-5-methylbenzenesulfonic acid,

4-aminobenzenesulfonic acid, sodium salt hydrate,

4',4'-bi[stilbene-2,2'''-disulfonate] disodium salt,

4-methyl-7-(diethylamino)-4-methylcoumarin, and

1-deoxy-1-(3,4-dihydro-7,8-dimethyl-2,4-dioxobenzo[g]pteridin-10(2H)-yl)-D-ribitol.

5. The method of Claim 1 in which Tracer Second is selected from the group consisting of

2-anthracenesulfonic acid sodium salt,

1,5-anthracenedisulfonic acid,

2,6-anthracenedisulfonic acid,

1,8-anthracenedisulfonic acid,

4-dibenzofuransulfonic acid,

3-dibenzofuransulfonic acid,

1,5-naphthalenedisulfonic acid, disodium salt (hydrate),

benzenesulfonic acid, 2,2'-(1,2-ethenediyl)bis[5-(4-phenyl-2H-1,2,3-triazol-2-yl)-, dipotassium salt, and

2,2'-stilbenedisulfonic acid, 4,4'-bis(4-phenyl-2H-1,2,3-triazol-2-yl)-, disodium salt.

6. The method of Claim 1 in which the fluorometers are selected from the group consisting of TRASAR 8000 fluorometer; TRASAR 700 fluorometer; TRASAR 3000 fluorometer; modified TRASAR 3000 fluorometer; TRASAR Xe-2 Controller; and the Cyclops 7 fluorometer .

7. The method of Claim 1 wherein said hydraulic fluid is a water based hydraulic fluid selected from the group consisting of

a) water/glycol hydraulic fluids;

b) water-in-oil emulsion hydraulic fluids; and

c) oil-in-water emulsion hydraulic fluids.

8. The method of Claim 7 wherein said hydraulic fluid is a water/glycol hydraulic fluid.

9. The method of Claim 7 wherein said hydraulic fluid is a water-in-oil emulsion hydraulic fluid.

10. The method of Claim 7 wherein said hydraulic fluid is an oil-in-water emulsion hydraulic fluid.

11. The method of Claim 1 wherein said hydraulic fluid is a non-water based hydraulic fluid selected from the group consisting of phosphate ester based hydraulic fluids and polyol ester hydraulic fluids.

12. The method of Claim 11 wherein said non-water based hydraulic fluid is a phosphate ester based hydraulic fluid.

13. The method of Claim 12 wherein said non-water based hydraulic fluid is a polyol ester hydraulic fluid.

14. The method of Claim 1 wherein Tracer First is selected from the group consisting of fluorescein and fluorescein, sodium salt and wherein Tracer Second is selected from the group consisting of

2-anthracenesulfonic acid sodium salt,

1,5-anthracenedisulfonic acid,

2,6-anthracenedisulfonic acid,

1,8-anthracenedisulfonic acid, and

1,5-naphthalenedisulfonic acid, disodium salt.

15. The method of Claim 14 wherein Tracer First is fluorescein, sodium salt and Tracer Second is 1,5-naphthalenedisulfonic acid, disodium salt.

16. The method of Claim 14 wherein the hydraulic fluid is a water based hydraulic fluid.

17. The method of Claim 14 wherein the hydraulic fluid is a non-water based hydraulic fluid.

18. The method of Claim 14 wherein said production plant is an aluminum mill.

19. The method of Claim 14 wherein said production plant is a steel mill.